

## ABSTRACT

A system and method for economically yet thoroughly testing serial ports of electronic devices includes a receiver and a transmitter. The receiver is coupled to a TX line of a device under test for receiving an input serial bit stream from the device under test. The transmitter is coupled to a RX line of the device under test for providing an output serial bit stream to the device under test. The receiver is coupled to the transmitter for establishing a loopback connection. A time distortion circuit is interposed between the receiver and the transmitter, for adding predetermined amounts of timing distortion to the output serial bit stream. In addition, a selector is interposed between the receiver and the transmitter, for selecting between the receiver and a direct input. The direct input provides an algorithmic test signal that differs from the input serial bit stream received by the receiver. The direct input thus allows a tester to exercise the device under test with a test signal that differs from the signal that the device under test generates. A time measurement circuit measures timing characteristics of the device under test, and a parametric measurement circuit measures steady-state characteristics of the device under test.